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EXAMINER	
DENNISON, JERRY B	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/683,933	TRIPATHI ET AL.	
	Examiner	Art Unit	
	JERRY B. DENNISON	2143	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-61* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-61* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Action is in response to Application Number 10/683,933 received on 10/10/2003.

2. Claims 1-61 are presented for examination.

Specification

3. The Specification is objected to because the "Cross Reference to Related Applications" section is incomplete. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1-4, 9-13, 15, 20-22, 27-31, 33-37, 39-47, 52-55, and 60-61 are rejected under 35 U.S.C. 102(e) as being anticipated by DiMambro (U.S. 7,076,545).

5. Regarding claim 1, DiMambro disclosed a method for processing packets through a plurality of protocol layers comprising:

accessing a packet associated with a connection (DiMambro, col. 1, lines 39-40); and

processing said packet through said plurality of protocol layers using a single thread wherein connection state information used by said plurality of protocol layers is preserved by mutual exclusion of other threads processing packets for said connection through said plurality of protocol layers (DiMambro, col. 1, lines 41-4, col. 5, lines 5-7).

6. Regarding claim 2, DiMambro disclosed the limitations as described in claim 1, including wherein said single thread is uninterrupted while processing said packet through said plurality of protocol layers (DiMambro, col. 2, lines 49-58).

7. Regarding claim 3, DiMambro disclosed the limitations as described in claim 1, including assigning said packet to a processing queue wherein said processing queue

provides single threaded processing of said packet through said plurality of protocol layers (DiMambro, col. 1, lines 41-49).

8. Regarding claim 4, DiMambro disclosed the limitations as described in claim 3, including wherein said processing queue provides single threaded processing of said packet through said plurality of protocol layers by assigning only one packet to be processed by said plurality of protocol layers at a time (DiMambro, col. 2, lines 49-58).

9. Regarding claim 9, DiMambro disclosed the limitations as described in claim 1, including assigning said connection to a single processor of a multi-processor computer system wherein packets associated with said connection are directed to said single processor for processing by said single thread (DiMambro, col. 1, lines 35-50).

10. Regarding claim 10, DiMambro disclosed a method for processing data packets comprising:

accessing a data packet associated with a connection (DiMambro, col. 1, lines 39-40); and

assigning said connection for processing to a single processor of a multiprocessor server system wherein said single processor services all data packets associated with said connection (DiMambro, col. 1, lines 41-49).

11. Regarding claim 11, DiMambro disclosed the limitations as described in claim 10, including processing said data packet through said plurality of protocol layers using a single thread wherein connection state information used by said plurality of protocol layers is preserved by mutual exclusion from other threads processing packets for said connection through said plurality of protocol layers (DiMambro, col. 1, lines 41-49).

12. Regarding claim 12, DiMambro disclosed the limitations as described in claim 11, including wherein said single thread is uninterrupted while processing said data packet through said plurality of protocol layers (DiMambro, col. 2, lines 49-58).

13. Regarding claim 13, DiMambro disclosed the limitations as described in claim 11, including assigning said data packet to a processing queue associated with said single processor wherein said processing queue provides single threaded processing of said data packet through said plurality of protocol layers (DiMambro, col. 2, lines 49-58).

14. Regarding claim 15, DiMambro disclosed the limitations as described in claim 13, including wherein said processing queue provides single threaded processing of said packet through said plurality of protocol layers by assigning only one packet to be processed by said plurality of protocol layers at a time (DiMambro, col. 2, lines 49-58).

15. Regarding claim 20, DiMambro disclosed a method for processing packets comprising:

accessing a packet associated with a connection (DiMambro, col. 1, lines 39-40); and

assigning said packet to a processing queue wherein said processing queue provides uninterrupted single threaded processing of said data packet through a plurality of protocol layers (DiMambro, col. 1, lines 41-49, col. 5, lines 5-7).

16. Regarding claim 21, DiMambro disclosed the limitations as described in claim 20, including wherein said processing queue provides mutual exclusion of same-connection packet processing through said plurality of protocol layers (DiMambro, col. 1, lines 41-49).

17. Regarding claim 22, DiMambro disclosed the limitations as described in claim 20, including wherein said processing queue is associated with a single processor of a multiprocessor server system and wherein all packets associated with said connection are processed by said single processor (DiMambro, col. 1, lines 41-49).

18. Regarding claim 27, DiMambro disclosed the limitations as described in claim 20, including wherein said plurality of protocol layers includes a TCP protocol layer (DiMambro, col. 2, lines 49-55).

19. Regarding claim 28, DiMambro disclosed the limitations as described in claim 20, including wherein said plurality of protocol layers includes an IP protocol layer (DiMambro, col. 2, lines 49-55).

20. Regarding claim 29, DiMambro disclosed a method of processing packets comprising:

processing packets of a same connection through a plurality of protocol layers of a communication system, wherein state information of any given packet is preserved because said packets are individually mutually excluded from said protocol layers (DiMambro, col. 1, lines 39-50).

21. Regarding claim 30, DiMambro disclosed the limitations as described in claim 29, including assigning a packet of said same connection to a queue, said queue associated with said same connection and further comprising said queue assigning packets of said same connection to said plurality of protocol layers only one packet at a time (DiMambro, col. 2, lines 49-58).

22. Regarding claim 31, DiMambro disclosed the limitations as described in claim 30, including generating a connection data structure unique to said same connection and identifying packets of said same connection using said connection data structure (col. 1, lines 45-50, col. 3, lines 1—20, col. 4, lines 8-17, col. 5, lines 18-25).

23. Regarding claim 33, DiMambro disclosed the limitations as described in claim 31, including wherein said queue is associated with said connection data structure (DiMambro, col. 5, lines 18-25).

24. Regarding claim 34, DiMambro disclosed the limitations as described in claim 31, including wherein said packets of said same connection are processed through said plurality of protocol layers using a same processor of a multi-processor computer system (DiMambro, col. 1, lines 45-50).

25. Regarding claim 35, DiMambro disclosed the limitations as described in claim 34, including wherein said packets of said same connection are processed using a single thread (DiMambro, col. 1, lines 45-50).

26. Regarding claim 36, DiMambro disclosed a multiprocessor server system comprising:

a plurality of processors for processing packets through a plurality of protocol layers (DiMambro, col. 1, lines 35-40);

a plurality of queues, each queue associated with a respective processor of said plurality of processors (DiMambro, col. 1, lines 41-45); and

a memory resident connection data structure for assigning packets of a same connection to a same queue of said plurality of queues for processing said packets of

said same connection by a same processor of said plurality of processors (DiMambro, col. 1, lines 32-45, col. 4, lines 8-20, col. 5, lines 15-25).

27. Regarding claim 37, DiMambro disclosed the limitations as described in claim 36, including wherein said connections are TCP connections (DiMambro, col. 4, lines 49-51).

28. Regarding claim 39, DiMambro disclosed the limitations as described in claim 36, including wherein a processor of said plurality of processors processes a packet of its queue without interruption through said plurality of protocol layers except for scheduling another packet on its queue (DiMambro, col. 5, lines 1-7).

29. Regarding claim 40, DiMambro disclosed the limitations as described in claim 37, including wherein a processor of said plurality of processors processes a packet of its queue without interruption through said plurality of protocol layers except for scheduling another packet on its queue (DiMambro, col. 5, lines 1-7).

30. Regarding claim 41, DiMambro disclosed the limitations as described in claim 37, including wherein said connection data structure is established for a new connection upon receiving a new connection request and wherein said connection data structure comprises an identifier of a queue to which all packets of said new connection are to be assigned (DiMambro, col. 1, lines 32-45, col. 4, lines 8-20, col. 5, lines 15-25).

31. Regarding claim 42, DiMambro disclosed the limitations as described in claim 36, including a plurality of cache memories, each cache associated with a respective processor of said plurality of processors (DiMambro, col. 1, lines 39-45).

32. Regarding claim 43, DiMambro disclosed the limitations as described in claim 36, including wherein state information of any given packet of a same connection is preserved because said packets of said same connection are individually mutually excluded from said protocol layers (DiMambro, col. 1, lines 45-50).

33. Regarding claim 44, DiMambro disclosed a computer system comprising a processor coupled to a bus and a memory coupled to said bus and comprising instructions (DiMambro, col. 2, lines 24-35) that when executed implement a method for processing data packets comprising:

accessing a packet associated with a connection (DiMambro, col. 1, lines 39-40); and

processing said packet through said plurality of protocol layers using a single thread wherein connection state information used by said plurality of protocol layers is preserved by mutual exclusion of other threads processing packets for said connection through said plurality of protocol layers (DiMambro, col. 1, lines 41-49, col. 5, lines 5-7).

34. Regarding claim 45, DiMambro disclosed the limitations as described in claim 44, including wherein said single thread is uninterrupted while processing said packet through said plurality of protocol layers (DiMambro, col. 2, lines 43-47).

35. Regarding claim 46, DiMambro disclosed the limitations as described in claim 44, including wherein said packet are assigned to a processing queue wherein said processing queue provides single threaded processing of said packet through said plurality of protocol layers (DiMambro, col. 1, lines 38-45, col. 2, lines 43-47).

36. Regarding claim 47, DiMambro disclosed the limitations as described in claim 46, including wherein said processing queue provides single threaded processing of said packet through said plurality of protocol layers by assigning only one packet to be processed by said plurality of protocol layers at a time (DiMambro, col. 2, lines 49-58).

37. Regarding claim 52, DiMambro disclosed the limitations as described in claim 44, including wherein said connection is assigned to a single processor of a multi-processor computer system wherein packets associated with said connection are directed to said single processor for processing by said single thread (DiMambro, col. 1, lines 38-45, col. 2, lines 43-47).

38. Regarding claim 53, DiMambro disclosed a computer system comprising a processor coupled to a bus and a memory coupled to said bus and comprising

instructions (DiMambro, col. 2, lines 24-35) that when executed implement a method for processing data packets comprising:

accessing a packet associated with a connection (DiMambro, col. 1, lines 39-40); and

assigning said packet to a processing queue wherein said processing queue provides uninterrupted single threaded processing of said data packet through a plurality of protocol layers (DiMambro, col. 1, lines 41-49, col. 5, lines 5-7).

39. Regarding claim 54, DiMambro disclosed the limitations as described in claim 53, including wherein said processing queue provides mutual exclusion of same-connection packet processing through said plurality of protocol layers (DiMambro, col. 5, lines 5-7).

40. Regarding claim 55, DiMambro disclosed the limitations as described in claim 53, including wherein said processing queue is associated with a single processor of a multiprocessor server system and wherein all packets associated with said connection are processed by said single processor (DiMambro, col. 1, lines 41-49, col. 5, lines 5-7).

41. Regarding claim 60, DiMambro disclosed the limitations as described in claim 53, including wherein said plurality of protocol layers includes a TCP protocol layer (DiMambro, col. 4, lines 49-51).

42. Regarding claim 61, DiMambro disclosed the limitations as described in claim 53, including wherein said plurality of protocol layers includes an IP protocol layer (DiMambro, col. 4, lines 49-51).

43. Claims 1-5, 9-13, 15, 20-22, 27-30, 44-48, 52-55, 60-61 are rejected under 35 U.S.C. 102(b) as being anticipated by Chang et al. (U.S. 6,338,078).

44. Regarding claim 1, Chang disclosed a method for processing packets through a plurality of protocol layers comprising:

accessing a packet associated with a connection (Chang, col. 2, lines 56-58); and

processing said packet through said plurality of protocol layers using a single thread wherein connection state information used by said plurality of protocol layers is preserved by mutual exclusion of other threads processing packets for said connection through said plurality of protocol layers (Chang, col. 2, lines 64-67, col. 4, lines 40-45, col. 5, lines 60-65).

45. Regarding claim 2, Chang disclosed the limitations as described in claim 1, including wherein said single thread is uninterrupted while processing said packet through said plurality of protocol layers (Chang, col. 5, lines 30-33, lines 60-66).

46. Regarding claim 3, Chang disclosed the limitations as described in claim 1, including assigning said packet to a processing queue wherein said processing queue provides single threaded processing of said packet through said plurality of protocol layers (Chang, col. 6, lines 44-47).

47. Regarding claim 4, Chang disclosed the limitations as described in claim 3, including wherein said processing queue provides single threaded processing of said packet through said plurality of protocol layers by assigning only one packet to be processed by said plurality of protocol layers at a time (Chang, col. 6, lines 45-50).

48. Regarding claim 5, Chang disclosed the limitations as described in claim 4, including wherein said packet is assigned to said processing queue based on address information of said connection (Chang, col. 2, lines 64-67).

49. Regarding claim 9, Chang disclosed the limitations as described in claim 1, including assigning said connection to a single processor of a multi-processor computer system wherein packets associated with said connection are directed to said single processor for processing by said single thread (Chang, col. 2, lines 60-67).

50. Regarding claim 10, Chang disclosed a method for processing data packets comprising:

accessing a data packet associated with a connection (Chang, col. 2, lines 56-58); and

assigning said connection for processing to a single processor of a multiprocessor server system wherein said single processor services all data packets associated with said connection (Chang, col. 2, lines 64-67, col. 4, lines 40-45, col. 5, lines 60-65).

51. Regarding claim 11, Chang disclosed the limitations as described in claim 10, including processing said data packet through said plurality of protocol layers using a single thread wherein connection state information used by said plurality of protocol layers is preserved by mutual exclusion from other threads processing packets for said connection through said plurality of protocol layers (Chang, col. 2, lines 47-67).

52. Regarding claim 12, Chang disclosed the limitations as described in claim 11, including wherein said single thread is uninterrupted while processing said data packet through said plurality of protocol layers (Chang, col. 5, lines 30-33, lines 60-66).

53. Regarding claim 13, Chang disclosed the limitations as described in claim 11, including assigning said data packet to a processing queue associated with said single processor wherein said processing queue provides single threaded processing of said data packet through said plurality of protocol layers (Chang, col. 2, lines 55-67, col. 4, lines 40-45).

54. Regarding claim 15, Chang disclosed the limitations as described in claim 13, including wherein said processing queue provides single threaded processing of said packet through said plurality of protocol layers by assigning only one packet to be processed by said plurality of protocol layers at a time (Chang, col. 4, lines 40-45).

55. Regarding claim 20, Chang disclosed a method for processing packets comprising:

accessing a packet associated with a connection (Chang, col. 2, lines 56-58); and

assigning said packet to a processing queue wherein said processing queue provides uninterrupted single threaded processing of said data packet through a plurality of protocol layers (Chang, col. 2, lines 64-67, col. 4, lines 40-45, col. 5, lines 60-65).

56. Regarding claim 21, Chang disclosed the limitations as described in claim 20, including wherein said processing queue provides mutual exclusion of same-connection packet processing through said plurality of protocol layers (Chang col. 2, lines 55-67).

57. Regarding claim 22, Chang disclosed the limitations as described in claim 20, including wherein said processing queue is associated with a single processor of a

multiprocessor server system and wherein all packets associated with said connection are processed by said single processor (Chang, Chang col. 2, lines 55-67).

58. Regarding claim 27, Chang disclosed the limitations as described in claim 20, including wherein said plurality of protocol layers includes a TCP protocol layer (Chang, col. 4, lines 40-45).

59. Regarding claim 28, Chang disclosed the limitations as described in claim 20, including wherein said plurality of protocol layers includes an IP protocol layer (Chang, Fig. 4, 74).

60. Regarding claim 29, Chang disclosed a method of processing packets comprising:

processing packets of a same connection through a plurality of protocol layers of a communication system, wherein state information of any given packet is preserved because said packets are individually mutually excluded from said protocol layers (Chang, col. 2, lines 64-67, col. 4, lines 40-45, col. 5, lines 60-65).

61. Regarding claim 30, Chang disclosed the limitations as described in claim 29, including assigning a packet of said same connection to a queue, said queue associated with said same connection and further comprising said queue assigning

packets of said same connection to said plurality of protocol layers only one packet at a time (Chang, col. 4, lines 60-67).

62. Regarding claim 44, Chang disclosed a computer system comprising a processor coupled to a bus and a memory coupled to said bus and comprising instructions (Chang, col. 3, lines 25-55) that when executed implement a method for processing data packets comprising:

accessing a packet associated with a connection (Chang, col. 2, lines 56-58); and

processing said packet through said plurality of protocol layers using a single thread wherein connection state information used by said plurality of protocol layers is preserved by mutual exclusion of other threads processing packets for said connection through said plurality of protocol layers (Chang, col. 2, lines 64-67, col. 4, lines 40-45, col. 5, lines 60-65).

63. Regarding claim 45, Chang disclosed the limitations as described in claim 44, including wherein said single thread is uninterrupted while processing said packet through said plurality of protocol layers (Chang, col. 5, lines 30-33, lines 60-66)).

64. Regarding claim 46, Chang disclosed the limitations as described in claim 44, including wherein said packet are assigned to a processing queue wherein said

processing queue provides single threaded processing of said packet through said plurality of protocol layers (Chang, col. 4, lines 60-67).

65. Regarding claim 47, Chang disclosed the limitations as described in claim 46, including wherein said processing queue provides single threaded processing of said packet through said plurality of protocol layers by assigning only one packet to be processed by said plurality of protocol layers at a time (Chang, col. 4, lines 60-67).

66. Regarding claim 48, hang disclosed the limitations as described in claim 47, including wherein said packet is assigned to said processing queue based on address information of said connection (Chang, col. 2, lines 64-67).

67. Regarding claim 52, Chang disclosed the limitations as described in claim 44, including wherein said connection is assigned to a single processor of a multi-processor computer system wherein packets associated with said connection are directed to said single processor for processing by said single thread (Chang, col. 4, lines 60-67).

68. Regarding claim 53, Chang disclosed a computer system comprising a processor coupled to a bus and a memory coupled to said bus and comprising instructions (Chang, col.) that when executed implement a method for processing data packets comprising:

accessing a packet associated with a connection (Chang, col. 2, lines 56-58); and

assigning said packet to a processing queue wherein said processing queue provides uninterrupted single threaded processing of said data packet through a plurality of protocol layers (Chang, col. 2, lines 64-67, col. 4, lines 40-45, col. 5, lines 60-65).

69. Regarding claim 54, Chang disclosed the limitations as described in claim 53, including wherein said processing queue provides mutual exclusion of same-connection packet processing through said plurality of protocol layers (Chang, col. 4, lines 60-67).

70. Regarding claim 55, Chang disclosed the limitations as described in claim 53, including wherein said processing queue is associated with a single processor of a multiprocessor server system and wherein all packets associated with said connection are processed by said single processor (Chang, col. 4, lines 60-67).

71. Regarding claim 60, Chang disclosed the limitations as described in claim 53, including wherein said plurality of protocol layers includes a TCP protocol layer (Chang, col. 4, lines 40-45).

72. Regarding claim 61, Chang disclosed the limitations as described in claim 53, including wherein said plurality of protocol layers includes an IP protocol layer (Chang, col. 4, lines 40-45).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

73. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (U.S. 6,338,078).

74. Regarding claim 14, Chang disclosed the limitations as described in claim 13. Chang did not explicitly state wherein the queue is an squeue.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the queue of Chang with any type of queue, including an squeue, as long as the same functionality is performed, which is queuing packets for processing. The type of queue is a matter of design choice since the same functionality is performed.

75. Claims 6-8, 16-19, 23-26, 31-43, 49-51, and 5-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (U.S. 6,338,078) in view of Syvanne (U.S. 2002/0112188).

76. Regarding claims 6, 16, 23, 31, 49, and 56, Chang disclosed the limitations as described in claims 1, 10, 20, 30, 44, and 53. Chang also disclosed that packets are distributed to one of the N queues by using a hashing function (Chang, col. 2, lines 64-66).

Chang did not explicitly state generating a connection data structure specific to said connection based on address information of said connection.

In an analogous art, Syvanne disclosed a method for handling information about packet data connections in which connection data structures are created (Syvanne, [0009]). As such, Syvanne suggests the use of data structures for classifying packets and shows that such packet classification was well known at the time the invention was made.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate using data structures to classify packets according to connections into the system of Chang in order to obtain the predictable result of distributing packets to its corresponding queue/processor duo based on the connection that the packet belongs, thereby providing a more scalable system allowing multiple ways of classifying packets.

77. Regarding claims 7, 17, 24, 50, and 57, Chang and Syvanne disclosed the limitations as described in claims 6, 16, 23, 49, and 56, including wherein said address information comprises a local IP address and a remote IP address (Chang, Fig. 4, 74). See motivation above.

78. Regarding claims 8, 18, 25, 51, 58, Chang and Syvanne disclosed the limitations as described in claims 7, 17, 24, 49, 57, including wherein said address information further comprises a remote port address and a local port address (Chang, Fig. 4, 76). See motivation above.

79. Regarding claims 19, 26, 34, 59, Chang and Syvanne disclosed the limitations as described in claim 16, 25, 31, and 58. Chang and Syvanne did not explicitly state wherein subsequent data packets of said connection are assigned to said single processor based on said connection structure.

However as shown above, Syvanne suggests the use of data structures for classifying packets and shows that such packet classification was well known at the time the invention was made.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate using data structures to classify packets according to connections into the system of Chang in order to obtain the predictable result of distributing packets to its corresponding queue/processor duo based on the

connection that the packet belongs, thereby providing a more scalable system allowing multiple ways of classifying packets.

80. Regarding claim 32, Chang and Syvanne disclosed the limitations as described in claim 31, including wherein said packets are identified as belonging to said same connection via address information stored in said packets (Chang, col. 2, lines 64-67). See motivation above.

81. Regarding claim 33, Chang and Syvanne disclosed the limitations as described in claim 31. Chang and Syvanne did not explicitly state wherein said queue is associated with said connection data structure.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that using the connection data structure to properly classify the packets and properly distribute them to the queue/processor duo includes an association between the connection data structure and the queue. See motivation above.

82. Regarding claim 35, Chang and Syvanne disclosed the limitations as described in claim 34, including wherein said packets of said same connection are processed using a single thread (Chang, col. 2, lines 55-67). See motivation above.

83. Regarding claim 36, Chang disclosed a multiprocessor server system comprising:

a plurality of processors for processing packets through a plurality of protocol layers (Chang, col. 2, lines 55-56); and

a plurality of queues, each queue associated with a respective processor of said plurality of processors (Chang, col. 2, lines 59-65).

Chang also disclosed assigning packets of a same connection to a same queue of said plurality of queues for processing said packets of said same connection by a same processor of said plurality of processors (Chang, col. 2, lines 64-67).

Chang did not explicitly state including a memory resident connection data structure for such assignment.

In an analogous art, Syvanne disclosed a method for handling information about packet data connections in which connection data structures are created (Syvanne, [0009]). As such, Syvanne suggests the use of data structures for classifying packets and shows that such packet classification was well known at the time the invention was made.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate using data structures to classify packets according to connections into the system of Chang in order to obtain the predictable result of distributing packets to its corresponding queue/processor duo based on the connection that the packet belongs, thereby providing a more scalable system allowing multiple ways of classifying packets.

84. Regarding claim 37, Chang and Syvanne disclosed the limitations as described in claim 36, including wherein the connections are TCP connections (Chang, col. 2, lines 65-67). See motivation above.

85. Regarding claim 38, Chang and Syvanne disclosed the limitations as described in claim 37, including wherein said plurality of protocol layers comprise IP, TCP, and socket layers (Chang, Fig. 4). See motivation above.

86. Regarding claim 39, Chang and Syvanne disclosed the limitations as described in claim 36, including wherein a processor of said plurality of processors processes a packet of its queue without interruption through said plurality of protocol layers except for scheduling another packet on its queue (Chang, col. 2, lines 55-67). See motivation above.

87. Regarding claim 40, Chang and Syvanne disclosed the limitations as described in claim 37, including wherein a processor of said plurality of processors processes a packet of its queue without interruption through said plurality of protocol layers except for scheduling another packet on its queue (Chang, col. 2, lines 55-67). See motivation above.

88. Regarding claim 41, Chang and Syvanne disclosed the limitations as described in claim 37, including wherein said connection data structure is established for a new connection upon receiving a new connection request and wherein said connection data structure comprises an identifier of a queue to which all packets of said new connection are to be assigned (see rejection of claim 19). See motivation above.

89. Regarding claim 42, Chang and Syvanne disclosed the limitations as described in claim 36, including a plurality of cache memories, each cache associated with a respective processor of said plurality of processors (Chang, Fig. 3, 62, 64, 66, 68). See motivation above.

90. Regarding claim 43, Chang and Syvanne disclosed the limitations as described in claim 36, including wherein state information of any given packet of a same connection is preserved because said packets of said same connection are individually mutually excluded from said protocol layers (Chang, col. 2, lines 55-67). See motivation above.

Conclusion

Examiner's Note: Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. Bret Dennison whose telephone number is (571) 272-3910. The examiner can normally be reached on M-F 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272-1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Jerry Dennison/
Examiner, Art Unit 2143